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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/427,300 | 10/26/1999 | TOM Q WELLBAUM | 296 | 2979 |

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| EXAMINER | |
|---|---|
| PHAN, TRI H | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2661 | 11 |

DATE MAILED: 06/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/427,300 | WELLBAUM ET AL. | |
| | Examiner | Art Unit | |
| | Tri H. Phan | 2661 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *16 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *2-12,14-21 and 23-30* is/are pending in the application.

4a) Of the above claim(s) *1,13 and 22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *2,3,5,6,8-12,14-19 and 23-30* is/are rejected.

7)☐ Claim(s) *4,7,20 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment/Arguments*

1. This Office Action is in response to the Response/Amendment filed on January 16th, 2004. Claims 1, 13 and 22 are now canceled and new claims 23-30 are added. Claims 2-12, 14-21 and 23-30 are now pending in the application.

### *Claim Objections*

2. Claims 18 and 19 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The method in Claim 18 or in Claim 19 is improper depend on the cancelled claim 13.

3. Claims 6, 27 and 30 are objected to because of the following informalities:

Regarding claim 6, Line 11, it recites the limitation "an additional memory" without disclosing any "memory" in claim 6, nor in the parent claims, e.g. claims 2, 24 and 23; therefore, the sentence is vague and unclear. For the purpose of further examination on the merits and in the interest of expediting the examination process, the examiner will interpret the limitation "an additional memory" of the claimed invention (claim 1) as -- a memory --.

In regard to claim 27, line 4, "(synchronous optical network)" should be deleted.

Regarding claim 30, line 4, "(synchronous optical network)" should be replaced as -- (SONET) --.

Appropriate corrections are required.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 2-3, 5-6, 8-12, 14-19 and 23-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Helton et al.** (U.S.5,416,772) in view of **Fukunaga et al.** (U.S.6,118,795).

- In regard to claims 23 and 30, **Helton** discloses in Figs. 1-8 and in the respective portions of the specification about the method and apparatus ("*network element*") for flexible insertion of overhead data into the switch data stream over SONET/SDH, which comprises the input optical interfaces with the input timeslot interchanges 'TSI' 101-103 ("*input circuit*"), the time multiplex switch 'TMS' ("*switch circuit*") for processing and transferring data from the input TSIs to the appropriate output TSIs, and the output optical interfaces with the output TSI 104-106 ("*output circuit*") as disclosed in Fig. 1; col. 2, lines 42-63; wherein the super frame ("*first plurality of N optical signal frames*"), e.g. multiframe of serial STM-1 frames, are received by the input optical interfaces (It is inherent that the STM-1 frames are "*conforming to*"

the synchronous optical network standard, e.g. SONET/SDH and carrying data information in the "*payload*"; For example see col. 1, lines 27-45) and grouped into the timeslots ("*first plurality of N time slots*") by the input timeslot interchanges 'TSI' 101-103 (For example see Figs. 2-3; col. 1, lines 27-37; col. 2, lines 64-68); where the output optical interfaces and TSIs perform the reverse operations for grouping into timeslots and outputting the multiframe, e.g. "*second plurality of N time slots*" and "*second plurality of N optical signal frames*". **Helton** does discloses about the method for selectively writing data into designated sequential time slots from different data or frames ("*sequential placement of time slots*"; For example see col. 2, lines 5-20, 64-68), but fails to explicitly disclose about the "*concatenated optical signal frames*", wherein the time slots "*does not conform to SONET standard*". However, such implementation is known in the art.

For example, **Fukunaga** discloses the system and method for processing the reception pointer in the SDH transmission system, which receives and separates the concatenated frames, e.g. STS-3c/12c or "*concatenated optical signal frames*" or "*OC-3c and OC-12c*", into STS-1 frames of parallel channels by the separation section in the reception pointer processing (For example see col. 2, lines 32-44). **Fukunaga** fails to explicitly disclose where the time slots of the concatenated frames "*does not conform to SONET standard*". However, it is obvious that the STS-3c/12c frame consists of three/twelve concatenated STS-1 frames and has three/twelve bigger number of time slots in the STS-1 frame. Therefore, the number of time slots in the STS-3c/12c frame "*does not conform to SONET standard*", e.g. the number of time slots in the STS-1 frame.

Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention was made to combine the invention as taught by **Fukunaga**, by implementing the separation section in the reception pointer processing into the **Helton**'s input optical interfaces with the input timeslot interchanges, with the motivation being to improve the ability for transporting higher data rate, e.g. STS-3c/12c, in the future applications of SONET system as disclosed in **Helton**: col. 1, line 67 through col. 2, line 2.

- Regarding claim 5, **Helton** further discloses about the input TSIs 101-103 ("*first switch stage*") coupled to the input optical interfaces 111-113 ("*input circuit*") and the output TSIs 104-106 ("*second switch stage*") coupled to the input optical interfaces 111-113 ("*output circuit*") as disclosed in Fig. 1; col. 2, lines 42-63.

- In regard to claims 10-12 and 25-26, **Helton** does disclose about the "*SONET/SDH*", but fails to explicitly disclose about the concatenated optical signal frames OC-3c/12c, OC-48. However, such implementation is known in the art.

For example, **Fukunaga** discloses about the concatenated optical signal frames STS-3c/12c ("*OC-3c/12c*"; For example see col. 2, lines 40-44), or higher rate as STS-N, where N = 48, 192, etc., ("OC-48"; For example see col. 4, lines 5-10).

Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention was made to combine the invention as taught by **Fukunaga**, by implementing the separation section in the reception pointer processing into the **Helton**'s input optical interfaces with the input timeslot interchanges, with the motivation being to improve the ability for

transporting higher data rate, e.g. STS-3c/12c, in the future applications of SONET system as disclosed in **Helton**: col. 1, line 67 through col. 2, line 2.

- Regarding claims 24 and 28, **Helton** does discloses about the method for selectively writing data into designated sequential time slots from different data or frames ("*sequential placement of time slots*"; For example see col. 1, lines 27-37; col. 2, lines 5-20, 64-68) and outputting the STM-1 frames by the output optical interfaces (For example see Fig. 1, lines 42-63), but fails to explicitly disclose about the "*concatenated optical signal frames*", wherein the time slots "*does not conform to SONET standard*". However, such implementation is known in the art.

For example, **Fukunaga** discloses the system and method for processing the reception pointer in the SDH transmission system, which receives and separates the concatenated frames, e.g. STS-3c/12c or "*concatenated optical signal frames*", into STS-1 frames of parallel channels by the separation section in the reception pointer processing (For example see col. 2, lines 32-44). **Fukunaga** fails to explicitly disclose where the time slots of the concatenated frames "*does not conform to SONET standard*". However, it is obvious that the STS-3c/12c frame consists of three/twelve concatenated STS-1 frames and has three/twelve bigger number of time slots in the STS-1 frame. Therefore, the number of time slots in the STS-3c/12c frame "*does not conform to SONET standard*", e.g. the number of time slots in the STS-1 frame.

Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention was made to combine the invention as taught by **Fukunaga**, by implementing the separation section in the reception pointer processing into the **Helton**'s input optical interfaces

with the input timeslot interchanges, with the motivation being to improve the ability for transporting higher data rate, e.g. STS-3c/12c, in the future applications of SONET system as disclosed in **Helton**: col. 1, line 67 through col. 2, line 2.

- In regard to claims 2-3 and 6, **Helton** further discloses about the word ("*pointer identification*") for each timeslot, e.g. byte of data or protocol, provided by the routing memory ("*pointer determining circuit*") and storing in the address information ("*memory*") in the routing memory under the control of the microprocessor in the input/output TSIs (For example see Figs. 1-4; col. 3, lines 2-4, 49-52; col. 4, lines 52-57; wherein the output TSIs 104-106 are the reverse image of the input TSIs 111-113 in Fig. 2), but fails to explicitly disclose about the concatenated optical signal frames. However, such implementation is known in the art.

For example, **Fukunaga** discloses the system and method for processing the reception pointer in the SDH transmission system, which receives and separates the concatenated frames, e.g. STS-3c/12c or "*concatenated optical signal frames*", into STS-1 frames of parallel channels by the separation section in the reception pointer processing (For example see col. 2, lines 32-44).

Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention was made to combine the invention as taught by **Fukunaga**, by implementing the separation section in the reception pointer processing into the **Helton**'s input optical interfaces with the input timeslot interchanges, with the motivation being to improve the ability for transporting higher data rate, e.g. STS-3c/12c, in the future applications of SONET system as disclosed in **Helton**: col. 1, line 67 through col. 2, line 2.

- Regarding claims 8-9, **Helton** further discloses about the data memory 201 with data in and data out memories ("*buffer circuits*"; For example see Fig. 2; col. 3, lines 47-52; **Helton** fails to explicitly disclose wherein the input/output memories are "*first-in-first-out buffer*"; however, it is obvious that the counter 208 generates time slots in sequence as disclosed in col. 2, lines 64-68; therefore, the data in and data out memories are processed in sequence, e.g. "*first-in-first-out buffer*").

- In regard to claims 27 and 29, **Helton** discloses in Figs. 1-8 and in the respective portions of the specification about the method and apparatus for flexible insertion of overhead data into the switch data stream over "*SONET/SDH*", which comprises the input optical interfaces with the input timeslot interchanges 'TSI' 101-103 ("*input circuit*"), the time multiplex switch 'TMS' ("*switch circuit*") for processing and transferring data from the input TSIs to the appropriate output TSIs, and the output optical interfaces with the output TSI 104-106 ("*output circuit*") as disclosed in Fig. 1; col. 2, lines 42-63; wherein the super frame ("*first plurality of N optical signal frames*"), e.g. multiframe of serial STM-1 frames, are received by the input optical interfaces (It is inherent that the STM-1 frames are "*conforming to*" the synchronous optical network standard, e.g. SONET/SDH, and carrying data information in the "*payload*"; For example see col. 1, lines 27-45) and grouped into the timeslots ("*first plurality of N time slots*") by the input timeslot interchanges 'TSI' 101-103 (For example see Figs. 2-3; col. 1, lines 27-37; col. 2, lines 64-68); where the output optical interfaces and TSIs perform the reverse operations for grouping into timeslots and outputting the multiframe, e.g. "*second*

*plurality of N time slots*" and "*second plurality of N optical signal frames*". **Helton** does discloses about the word for each timeslot, e.g. byte of data or protocol, provided by the routing memory ("*determining pointer*") and storing in the address information ("*memory*") in the routing memory under the control of the microprocessor in the input/output TSIs (For example see Figs. 1-4; col. 3, lines 2-4, 49-52; col. 4, lines 52-57and the method for selectively writing data into designated sequential time slots from different data or frames ("*sequential placement of time slots*"; For example see col. 2, lines 5-20, 64-68), but fails to explicitly disclose about the "*concatenated optical signal frames*", wherein the time slots "*does not conform to SONET standard*". However, such implementation is known in the art.

For example, **Fukunaga** discloses the system and method for processing the reception pointer in the SDH transmission system, which receives and separates the concatenated frames, e.g. STS-3c/12c or "*concatenated optical signal frames*", into STS-1 frames of parallel channels by the separation section in the reception pointer processing (For example see col. 2, lines 32-44). **Fukunaga** fails to explicitly disclose where the time slots of the concatenated frames "*does not conform to SONET standard*". However, it is obvious that the STS-3c/12c frame consists of three/twelve concatenated STS-1 frames and has three/twelve bigger number of time slots in the STS-1 frame. Therefore, the number of time slots in the STS-3c/12c frame "*does not conform to SONET standard*", e.g. the number of time slots in the STS-1 frame.

Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention was made to combine the invention as taught by **Fukunaga**, by implementing the separation section in the reception pointer processing into the **Helton**'s input optical interfaces with the input timeslot interchanges, with the motivation being to improve the ability for

transporting higher data rate, e.g. STS-3c/12c, in the future applications of SONET system as disclosed in **Helton**: col. 1, line 67 through col. 2, line 2.

- Regarding claims 14-17, **Helton** further discloses about the operation process for generating code word and storing the address information in the memory for each time slot ("*storing information*"; For example see col. 2, line 64 through col. 3, line 7, 49-60), detecting the word or byte of data for processing by the substitute memory and routing memory ("*identifying occupied time slots and determining information*"; For example see Figs. 5-6; col. 4, lines 1-45) in order to adapt the plesiochronous signals in each word or byte of data in time slot to the synchronous network clock ("*synchronizing optical signal frames based on pointer*"; For example see col. 1, lines 45-50).

***Response to Arguments***

8. Applicant's arguments filed on January 16th, 2004 have been fully considered but they are not persuasive.

In regard to claims 23, 27 and 30, Applicant argues that the combination of **Helton** and **Fukunaga** fails to explicitly disclose about the concatenated frames whose time slots do not conform with the optical network standard associated with the frames. Examiner respectfully disagrees. **Helton** discloses about the method and apparatus for flexible insertion of overhead data into the switch data stream over SONET/SDH network with STM-1 frames ("*optical network standard*"). **Fukunaga** discloses the system and method for processing the reception

pointer in the SDH transmission system, wherein the concatenated frames such as OC-3c/12c frames or "*concatenated optical signal frames*", into STS-1 frames of parallel channels by the separation section in the reception pointer processing (For example see col. 2, lines 32-44), but fails to explicitly disclose where the time slots of the concatenated frames "*does not conform to SONET standard*". However, it is obvious that the STS-3c/12c frame consists of three/twelve concatenated STS-1 frames and has three/twelve bigger number of time slots in the STS-1 frame. Therefore, the number of time slots in the STS-3c/12c frame "*does not conform to SONET standard*", e.g. the number of time slots in the STS-1 frame. Therefore, Examiner concludes that combination of **Helton** and **Fukunaga** teaches the arguable feature.

Claims 2-3, 5-6, 8-12, 14-19, 24-26 and 28-29 are rejected as in Part 7 above of this Office action and by virtue of their dependence from claims 23, 27 and 30.

### *Allowable Subject Matter*

9. Claims 4, 7 and 20-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### *Conclusion*

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**Huscroft et al.** (U.S.5,568,486), **Bleickardt et al.** (U.S.5,461,622) and **Wolf et al.** (U.S.6,526,069) are all cited to show devices and methods for improving the data transmission in SONET system, which are considered pertinent to the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tri H. Phan, whose telephone number is (703) 305-7444. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Olms can be reached on (703) 305-4703.

**Any response to this action should be mailed to:**

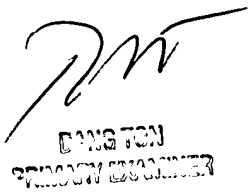
**Commissioner of Patents and Trademarks**
Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office, whose telephone number is (703) 305-3900.



Tri H. Phan
June 3, 2004